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Agriculture.

Chemurgic meeting. Pacific Rural Press. v.131, no. 12. March 21, 1936. p.386. Purpose of this conference is to stimulate new uses of the products and byproducts of agriculture.

Forces affecting Winconsin agriculture with resulting types of farming. By P.E. McNall and W.J. Roth. Madison, Wis., 1935. 40p. Wisconsin. Agricultural experiment station. Research bulletin no. 131. Brings together more important factors which affect or influence in large measure different kinds of agricultural production within state, and also shows geographic location of more important farming type areas, along with whatever reasons may be assigned for their development.

Let's face farm facts. By L.F. Livingston. v.56, no. 16. March 25, 1936. p. 11, 15.

Reply to Mr. Livingston. By J.H. Peters. New England Homestead. v.109, no. 4. February 15, 1936. p. 8, 14.

Selected list of American agricultural books. Compiled in the U.S. Department of Agriculture Library. Washington, D.C., 1936. 41 p. mimeographed.

Type of farming areas in Colorado. By Byron Hunter. Fort Collins, Colo., 1935. 135p. Colorado. Agricultural Experiment Station. Bulletin no. 418.

Air Conditioning.

Checking and determination of proper refrigerant charges in air-cooled systems. By L.K. Wright. Electric Refrigeration News. v.17, no.10. March 4, 1936. p.14-15. New and old methods of calculating amount of refrigerant required and theory involved.

Comfort cooling by solar radiation. Cold Storage and Produce Review. v.39, no. 455. February 20, 1936. p.35.

Domestic winter air conditioning. By B.S. Thurston. Refrigerating Engineering. v.31, no.2. February, 1936. p.91-94. Survey of heating systems equipped for attachment of refrigeration.

Essentials of air conditioning. By Maurice K. Fahnestock. Urbana, Ill. 1936. 15p. Illinois. Engineering experiment station. Reprint no.5.

Air Conditioning. (Cont'd)

New rating standards for air conditioning equipment. By Glenn M. Muffly. Refrigerating Engineering. v.31, no.2. February, 1936. p. 101-102, 118. Introduces second of two codes recently produced by Joint Committee on Commercial Refrigerating Equipment

New uses for psychrometric chart in simplifying air conditioning problems. By William Goodman. Heating, Piping and Air Conditioning. v.8, no.4. April, 1936. p.197-199. Part 3. Additional examples of the solution of air conditioning problems by the "psych" chart, and discussion of cases where sensible heat ratio is so low as to require reheating.

Associations.

American society of heating and ventilating engineers. Guide, 1936. New York, 1936. 1080p.

Building Construction.

A.C.I. Convention adopts new building code. Engineering News-Record. v.116, no. 10. March 5, 1936. p.356-359. Sessions in Chicago bring building regulations into line with new knowledge and record progress in concrete research, manufacture and application.

High-strength metals for construction service. Engineering News-Record. v.116, no.11. March 12, 1936. p.305-307. Data on many of the modern ferrous and non-ferrous alloy materials are presented at meeting of A.S.T.M. in Pittsburgh.

Walls, roofs and floors. Engineering News-Record, v. 116, no. 11. March 12, 1936. p.384-390.

Concrete.

How to estimate and mix concrete. Ohio Farmer. v.177, no.4. February 15, 1936. p.18. Table 1. Recommended proportions of water to cement, and suggested trial mixes.

Corrosion.

Effect of mixed acids upon irons and steels. By Justice Eddy and F.A. Rohrman. Industrial and Engineering Chemistry. v.28, no.1. January, 1936. p.30-31. High-carbon steels show greater tendency to retain their passivity in mixed acids than low-carbon steels. Quenched steels show greater tendency to resist mixed acid than furnace-cooled steels.

Cotton and Cotton Ginning.

Effects of gin-saw speed and seed-roll density on quality of cotton lint and operation of gin stands. By Charles A. Bennett and Francis L. Gerdes. Washington, D.C., 1936. 40p. U.S. Department of Agriculture. Technical bulletin no. 503.

Cotton and Cotton Ginning. (Cont'd)

Grade, staple length, and tenderability of cotton in the United States, 1928-29 to 1933-34. Washington, D.C., 1936. 122p. U.S. Department of Agriculture. Statistical bulletin no. 52.

Sharpening gin saws for better efficiency and quality ginning. By Charles A. Bennett and F.L. Gerdes. Cotton Ginners' Journal. v.7, no.7. April, 1936. p.7-8, 20, 29.

Dams.

Caverns under dam corewall set a nice repair problem. By Farley Gannett. Engineering News-Record. v.116, no. 14. April 2, 1936. p.492-494. Water finds cavern that grouting missed and scours outlet under dike and corewall of Ontelaunee Dam of new waterworks at Reading, Pa.

Discharge characteristics of the free overfall. By Hunter Rouse. Civil Engineering. v.6, no.4. April, 1936. p.257-260. Points out possibility of using free overfall as flow meter which needs no calibration. Although flow at overfall is not parallel, crest section is that of true minimum energy and hence is actual control section. Furthermore crest depth is constant percentage of computed critical depth for parallel flow. Analysis has been verified by experiment, and should provide dependable and simple means of determining discharge at points of overfall.

Permeability determinations, quabbin dams. By Stanley M. Dore. Proceedings American Society of Civil Engineers. v.62, no.3. March, 1936. p.299-328. Several methods of determining permeability of earth over-burden which forms foundation for proposed dam are outlined in paper. They are based on assumption that either or both of two general sources of information is available: (1) Dry samples from bore-hole investigations; and (2) effect of pumping upon ground-water conditions in that over-burden. Methods were developed primarily for use with materials of glacial origin, in cases where earth cover is thick and groundwater surface high in that earth cover, and if carefully applied, they can be adapted to give reasonable determinations under similar conditions elsewhere. Moreover, principles involved may be adapted for use in cases where materials are of different nature, or where some of other conditions are dissimilar.

Spillway capacity and runoff estimates for small dams. By W.A. Hardenbergh. Public Works. v.67, no.1. January, 1936. p.15-16. Second in series covering good practice in design and construction in small earth dams.

Drainage.

Drainage policy and projects. Report of the special sub-committee of the Water Resources Committee of the National Resources Committee. Washington, D.C., 1936. 22p.

Electric Wiring.

New wrinkles in wiring for electricity. By H.W. Riley. American Agriculturist. v.133, no.4. February 15, 1936. p.9.

On lower cost materials for farm wiring: Letter from Morris H. Lloyd. Agricultural Engineering. v.17, no.3. March, 1936. p.100, 119.

Electricity on the Farm.

Electrification of farms show 175% gain during 1935. Electric Refrigeration News. v.17, no.7. February 12, 1936. p.15. 83,000 farms to which electric service was extended in 1935 bring total of farms having central station electric service to 827,000 out of total of more than 6,800,000 in country.

Farm work for air waves. By William S. Dutton. Country Home. v.60, no.2. February, 1936. p.18-19. Electricity is revolutionizing farm work and farm living.

Growing things by magic. By Charles Morrow Wilson. Popular Mechanics. v.65, no.2. February, 1936. p.204-206, 116A, 118A.

How to get electricity on the farm. By L.D. Kelsey and H.W. Riley. Ithaca, N.Y. 1935. 10p. Cornell University. Extension Service. Bulletin no. 339.

More farms electrified. Northwest Farmer. v.4, no.12. April, 1936. p.7, 11.

What's ahead in farm electrification? Washington Farmer. v.61, no.6. March 19, 1936. p.6, 13. Washington and Oregon already lead in use of power on farm.

Engines.

Oil engine or electricity. Implement and Machinery Review. v.61, no. 731. March 1, 1936. p.1002-1005. Costs compared. Suitable types of motors. Rothamsted experiments.

Erosion Control.

Erosion of soil problem that requires best judgment in view of circumstances. By A.L. Nelson. Wyoming Stockman-Farmer. v.42, no.3. March, 1936. p. 1, 15.

Erosion surveys above silting reservoirs. Public Works. v.67, no.1. January, 1936. p.43. To provide fundamental, scientific facts on relation of soil erosion to silting of reservoirs, Soil Conservation Service of Department of Agriculture is beginning series of erosion surveys on watersheds lying above nine reservoirs in seven states. Similar surveys in two other states have been planned. Surveys will include parts of Virginia, North Carolina, South Carolina, Georgia, Missouri, Arkansas and Oklahoma. At a later date surveys will be conducted in Texas and California. According to H.H. Bennett, Chief of

Erosion Control. (Cont'd)

the Service, object of erosion surveys is to find out how serious soil erosion is in watersheds above the nine reservoirs, so that this information can be correlated directly with facts previously collected by Service on silting in these particular reservoirs. Completion of surveys will give authoritative information on direct relationship of soil erosion to costly reservoir silting. It may be possible to show how soil washed from a farm several miles from reservoir directly contributes to expensive sedimentation of that reservoir.

Menace of soil erosion. By H.H. Bennett. Nation's Agriculture. v. 11, no.6. March, 1936. p.4-5, 18-19.

Revolution in tillage. By C.W. Mullen. Farmer-Stockman. v.49, no.2. January 15, 1936. p.3, 15. Western farmers are setting pattern for East in erosion control.

Soil blowing and its control in Colorado. By J.F. Bandon and Alvin Kezer. Fort Collins, Col., 1936. 20p. Colorado. Agricultural Experiment Station. Bulletin no. 419.

Fans, Mechanical

Fan selection and nomenclature. By A.A. Berestneff. Refrigerating Engineering. v.31, no.3. March, 1936. p.175-179.

Farm Buildings and Equipment.

Farm building plan service. Ohio Farmer. v.177, no.4. February 15, 1936. p.14. Agricultural Engineering Department of Ohio State University and Agricultural Experiment Station, in cooperation with similar departments in other midwestern states has extensive blue-print service on farm buildings at acreage which covers only expense of making and distributing.

How to build the bull paddock. By S.A. Witzel. Madison, Wis., 1931. 3p. Mimeographed. Wisconsin. College of Agriculture. Extension Service. Stencil Circular no. 110.

Plan a definite building program. By John F. Cunningham. Ohio Farmer. v. 177, no. 4. February 15, 1936. p. 5, 13. Some thoughts on practical arrangement and construction.

Farm Income.

Latest on farm income. Farm Implement News. v.57, no.6. March 12, 1936. p. 42. Official estimates now place gross income of farmers for 1935 at $8,110,000,000, compared with $7,266,000,000 in 1934, a gain of $844,000,000 or 11.6 percent. The farmers' current production expenses, plus wages, taxes, interest and rent payable, and depreciation on buildings and equipment are placed at approximately $4,000,000,000, leaving about $4,110,000,000 available

Farm Income. (Cont'd)

to farm operators for their labor, capital and management. New year started with further substantial increase, January income being $566,000,000 against $520,000,000 in same month of 1935, an increase of $36,000,000.

Farm Machinery and Equipment.

All-crop harvester a tribute to Merritt's vision. Implement & Tractor. v.51, no.4. February 22, 1936. p.24-25.

Burr mill design and performance. By H.D. Bruhn. Agricultural Engineering. v.17, no.3. March, 1936. p. 101-108. Object of investigation described in paper was to determine some of fundamental principles involved in design and performance of burr type feed mill, and relation of numerous factors to each other

Cheaper but better hen houses. By J.P. Hertel. Pacific Rural Press. v. 131, no. 6. February 8, 1936. p.159.

Do your machinery fixing early. By E.T. Leavitt. Better Farm Equipment and Methods. v.8, no. 7. March, 1936. p.6-8. Now is the time to see that every machine is ready for the season's work.

Farm implement news buyer's guide. Chicago, Ill., 1936. 384p.

Farm machinery. By G.W. McCuen. Michigan Farmer. v.186, no. 5. February 29, 1936. p. 4, 12. Why many European farmers prefer American made machines.

Farm machinery and tomorrow's agriculture. By H.F. McColly. Northwest Farm Equipment Journal. v. 50, no. 3. March, 1936. p. 32-33.

Fix machinery early. By E.T. Leavitt. Michigan Farmer. v. 186, no. 5. February 29, 1936. p. 28.

Fundamentals of farm implement design. By Theo. Brown. Georgia Agricultural Engineer. 1936. p. 18-21. Creation of an implement entails following: 1. Idea or feature must have merit. 2. Preliminary lay-out must incorporate the relation of component parts. 3. Careful consideration of available shop equipment must be made. 4. There must be continual striving for simplification of parts and assemblies. 5. Cost analysis must be carried out as design proceeds. 6. There must be effort to secure ease and accuracy of erection of finished product both in factory and field. 7. Both field and laboratory tests must be made as design goes forward. 8. Designer must have ability to overcome troubles as they are encountered.

"March of time" with corn and civilization from ancient to modern agriculture. By J.C. Cunningham. Iowa Agriculturist. v. 36, no. 7. March, 1936. p. 236-237.

Mechanization in mixed farming: a conference at Oxford. Journal of the Ministry of Agriculture (London). v. 42, no. 11. February, 1936. p. 1093-1107. Specialist corn growing and mixed farming in relation

Farm Machinery & Equipment. (Cont'd)

to mechanization. Farm rotations in mechanized farming. Widening the scope of the mechanized arable farm. Tractor on the small farm. Row-crop equipment. Farm transport. Place of the horse in mixed farming. Stock in relation to mechanized farming. Folding systems. Mechanization and grassland improvement. Long leys and mechanized farming. Grass conservation. Grass drying on my farm. Small combines. Possibilities of saving labor in harvesting without combines. Grain storage on the farm. Grain storage.

New disk harrows meet needs of wet field tillage. By E.T. Leavitt. Implement and Tractor. v. 51, no. 6. March 21, 1936. p. 13, 36.

New farm machinery. By Thomas A. Leadley. Nebraska Farmer. v. 78, no. 6. March 14, 1936. p. 1, 26-27.

New harrows will hasten spring planting. By E.T. Leavitt. Utah Farmer. v. 56, no. 16. March 25, 1936. p. 6.

New things in farm machinery. By E.T. Leavitt. American Agriculturist. v. 133, no. 4. February 15, 1936. p. 5, 16.

Pasture contour furrowing machine. By C.A. Logan. Agricultural Engineering. v. 17, no. 3. March, 1936. p. 111-113. Summary: 1. Contour furrowing of overgrazed pasture eliminates need for gully-control structures, and increases growth of grass. 2. Data from experimental plots on Limestone Creek area show that contour furrows increased forage growth about 29 percent in 1935. 3. Indications are that best horizontal spacing between furrows is from 16 to 20 feet in Limestone Creek area. 4. Soil-moisture conditions have some influence on type of work done. 5. Machine will not work where soil is too loose or grass stand too thin. 6. Much more satisfactory results are obtained by using small blade to scrape grass from area where sod strip is to be placed. 7. Sod strip should be placed three to four inches below lower edge of furrow wall. 8. It is not economical to reverse two-way machine when furrows are less than 600 feet long. 9. Contour furrowing machine has following advantages over a plow or small blade for contouring pastures: (a) It leaves a much neater appearing job. (b) Grass on sod strip is not destroyed and may go right on growing if weather conditions are favorable. (c) Strip is unbroken and forms continuous levee. (d) It lessens amount of weed growth along disturbed area. (e) It is easier to mow along the strips. (f) It requires less time for furrows to become recodded. (g) It is an economical method of contour-furrowing pasture land.

Power and farm machinery for economical production. By H.H. Musselman. Michigan Farmer. v. 186, no. 5. February 29, 1936. p. 5, 19. Discusses important part that power and farm machinery is to play in future of business farming.

Results of studies of the cutting edges of tillage implements. By Frank J. Zink, G. A. Sellers and June Roberts. Agricultural Engineering. v. 17, no. 3. March, 1936. p. 93-97, 113. Progress report of study of those parts of tillage implements which function in the soil. More specifically, it relates to study of cutting edges of plowshares, particularly their wearing characteristics.

Farm Machinery & Equipment. (Cont'd)

There is something new under the sun. Farm Implement News. v.57, no. 7. March 26, 1936. p. 23. Machine is Innes hay maker. Hay is first cut, then handled and then cured. Handling precedes curing. Curing is done in "cock with a hole in it." What machine does is to weave thatched bale with horizontal hole through center and string around outside. Stems are spiraled into feed chamber in thatched form, not folded and tucked into compressed flake or mat, so that no spiraled air can get into any one part of Innes bale as easily as into any other part. Hole running through inside of bale seems to be crucial element in process of curing bale rather than in windrow or swath. Each bale is about 18 inches wide, 21 inches high and any length from 20 to 30 inches. They weigh from 15 to 25 pounds.

What is new in equipment? By E.T. Leavitt. New England Homestead. v. 109, no. 4. February 15, 1936. p. 4, 17. Farm machinery for 1936 provides greater efficiency, longer life.

Feed Grinders and Grinding.

Feed processing in relation to animal nutrition. By G. Bohstedt. Agricultural Engineering. v. 17, no. 3. March, 1936. p. 98-100. Advantages of grinding. 1: Grinding saves labor of chewing for animal. 2. Grinding saves whole grain from passing through digestive tract of animal and reappearing in feces. 3. Grinding saves refuse. 4. Grinding saves waste of hay and fodder. 5. Grinding saves labor on part of men. 6. Grinding saves storage space, reducing this to approximately one-half-space necessary for long hay.

Fences.

Faithful fence. Breeder's Gazette. v. 101, no. 2. February, 1936. p. 16, 19.

Fertilizer Placement.

Balancing crop rations with fertilizer. By Irvin J. Mathews. Successful Farming. v. 34, no. 4. April, 1936. p. 26, 72-74. New idea that will cut cost of old broadcast methods of application and really boost crop yields. Diagram shows perfected planter boot, placing fertilizer in bands at side of corn kernels.

Practical side of fertilizer application investigations. Fertilizer Review. v. 11, no. 1. January-February-March, 1936. p. 6, no. 9. Cotton experiments. Tobacco experiments. Experiments on potatoes. Experiments on corn. Practical application of results.

Fertilizer Spreaders.

Spreader earns taxes. By E.T. Leavitt. Wisconsin Agriculturist and Farmer. v. 63, no. 4. February 15, 1936. p. 33. Modern spreader pulverizes litter and makes it possible to apply thin even coating such as could not be done when hand methods were employed.

Fills.

Method of predicting settlement of fills placed on muck beds. By F.A. Robeson. Public Roads. v. 16, no. 12. February, 1936. p. 249-266. Data from compression test used in estimating rate and amount of settlement.

Floods and Flood Control.

Engineering reports on record floods from New England to the Potomac. Engineering News-Record. v. 116, no. 13. March 26, 1936. p. 441-442. Cities submerged in ten states, communication and public service paralyzed. Dams and bridges resisted well and detention reservoirs proved their worth.

Flood and erosion control problems and their solution: Discussion. By E.I. Kotok and C.J. Kraebel. Proceedings of American Society of Civil Engineers. v. 62, no. 3. March, 1936. p. 423-428.

Flood control occupies Congress. Engineering News-Record. v. 116, no. 14. April 2, 1936. p.505. Omnibus flood-control bill extended to include reservoir systems on eastern rivers as Congress considers measures. Numerous appropriations for rehabilitation and future control discussed. Rehabilitation Administration proposed.

Flood-control work in the Rio Grande delta. Engineering News-Record. v. 116, no. 12. March 19, 1936. p. 407-411. Restriction of main river channel in delta region makes flood-ways necessary. International Boundary Commission cooperates with counties in levee and floodway construction.

Relation of rainfall to flood run-off. By C.R. Pettis. Military Engineer. v. 28, no. 158. March-April, 1936. p. 94-98. In this paper relation of rainfall to flood run-off will be reduced to simple mathematical basis, so that general principles can be understood by one who is familiar with current literature on subject.

Florida Canal.

Beginning the Florida Canal. Engineering News-Record. v. 116, no.14. April 2, 1936. p. 479-483. Earth-moving operations on this new waterway, which is four times longer than the Panama Canal and will require twice as much excavation, include wide variety of methods and almost every type of equipment.

Gates.

Adjustable gate. Capper's Farmer. v. 47, no. 4. April, 1936. p.18. Advantages listed for this gate are: 1. It is constructed of 2 by 4's and is mounted on 2 by 6 which is hinged to post. Hence it is sturdy and turns stock. 2. It cannot sag. 3. It swings easily, because of counterbalancing weight. 4. Latch is so simple that a child can operate it, but it is too intricate for a smart horse. 5. It may be adjusted to permit pigs or calves to creep under it, but to hold

Gates. (Cont'd)

back hogs or older cattle. 6. Adjustment mechanism is simple and easily applied. 7. It can be lifted and will swing freely above snow drifts. Gate is held to 2 by 6 by hinged timber by two strap iron stirrups. They are held firmly in notches at back of 2 by 6 by a wedge that slips between front edge of that timber and end of top rail of gate. When it is desired to raise or lower gate the wedge is slipped out and gate slides up or down with slight effort, because of cement weight. Latch is of sliding type. On top edge is notch which engages wooden dog, pivoted at one end. Free end of dog drops automatically into place to lock latch when it is in fastened position.

Heating.

Fuel oil heaters. By James O.G. Gibbons. Power Plant Engineering. v. 40, no. 4. April, 1936. p. 221-222. Data pertinent to selection of proper size and installation of fuel oil heaters in power plants.

No radiators or registers, but plenty of heat. Heating & Ventilating. v. 33, no. 2. February, 1936. p. 42-43. Heat is supplied by gas furnace and is distributed by novel method. Unusual feature of installation is use of hollow space in exterior walls for distribution of heated air. Air is discharged into rooms through narrow opening above molding and on each windowsill. This feature serves two purposes - to eliminate all radiators and registers and large amount of ductwork, and to keep exterior walls of room warm so that heat is radiated from walls to occupants instead of from occupants to cold walls. Diagram gives cross-section of construction of outside walls, showing flow of air from basement duct through molding. Test of comparative cost of this system and ordinary duct system is in prospect.

Powdered coal plant cuts home heating bill. Popular Mechanics. v.65, no. 2. February, 1936. p.168. Company, which has just placed home unit on market, undertakes to deliver pulverized coal to airtight, combustion-proof hopper in home once every month or two, and its truck at same time pipes away by vacuum accumulated ashes at base of furnace. From hopper fuel is carried by specially designed feeder with tooth wheel through a tube where vacuum delivers it to inlet of exhaust fan. This fan drives powdered coal up flexible hose to burner nozzle where it enters combustion chamber downward. Proper aeration for thorough combustion is provided in the nozzle. Automatic thermostat control with several safety provisions regulates firing.

Reversed cycle refrigeration for heating of buildings. By P.A. Willis. Southern Power Journal. v.54, no.3. March, 1936. p. 30-38. For mild climates, reversed cycle refrigeration seems to have possibilities for successful application - especially when refrigerating compressors and electric power producing units are Diesel driven.

Thermal conductivity. By T.H. Ouderkirk. Aerologist. v. 12, no. 2. March, 1936. p. 10-12, 22, 26. Modern methods in heating and cooling calculations.

Hotbeds.

Plans for building home hotbeds. Utah Farmer. v.56, no.15. March 10, 1936. p.8.

Results on hotbed heating at Pennsylvania State College. By G.J. Stout. Market Growers Journal. v.58, no.6. March 15, 1936. p.162-163. Disadvantages in using all types of hotbeds: 1. Manure: Difficult at times to obtain good supply of manure in proper condition for hotbed use. 2. Electric: Rather expensive to operate unless electric rates are much lower than commonly found in eastern United States. 3. Coal: First cost of equipment is somewhat higher than that of electric equipment. Much lower operating cost of coal-heated bed may soon save more than this higher first cost except where electric rates are very low. 4. Kerosene: No suitable kerosene burning equipment for heating of hotbeds is on market at present. Such equipment may be improvised but it may become a fire hazard as was found in these experiments. 5. Gas: Manufactured gas for hotbed heating may cost as much as electricity. There is no equipment on market for use of gas in hotbed heating, but where natural gas is available at reasonable price this type of bed should be given consideration, especially in view of the excellent success which has been obtained.

Houses.

Architects form group for low cost house planning. Engineering News-Record. v. 116, no. 12. March 19, 1936. p. 437. In accord with recommendations by American Institute of Architects, group of about twenty New York architects has formed Small House Associates to offer, at minimum fees. architectural service on homes costing between $3,500 and $8,000. Member architects will submit sketches or plans for portfolio from which a prospective builder may select sketch. He is then referred to architect who made the sketch, and general plans are then modified to suit individual needs.

Building a house to high structural standards. By D.S. MacBride. Engineering News-Record. v. 116, no. 10. March 5, 1936. p.352-354. Monolithic construction of walls, floors, roof and partitions of a concrete house in New Orleans introduces special steel framing system.

Cost is low on concrete homes. Farmer-Stockman. v.49, no. 2. January 15, 1936. p.5.

Crane and shovel company starts prefabricated house business. Engineering News-Record. v.116, no. 12. March 19, 1936. p. 438. Harnischfeger Corporation, Milwaukee, Wisconsin, is offering home with six rooms and bath for about $4,000, payable $35 per month including amortization and all charges. Framework of house is fabricated from steel secrions bolted and welded together. Exterior wall assembly consists of fire-resistant building board with exterior

Houses. (Cont'd)

finish of special weather-resisting color-process coatings. Floors, walls and ceilings are completely insulated. Base of house is made of welded structural framework, underside of which is completely covered by galvanized metal sheets and one inch of insulation. This base is designed to be erected on fourteen concrete piers. Hip roof is in twelve sections, each constructed of steel rafter to which tongued and groved roof boards are securely fastened, as support for fire-resisting composition asphalt shingles. Home provides six rooms and bath. There are two large bedrooms, a living room, dining room and an equipped kitchen and heater room. Home may be had with or without basement, and with two different types of roof - hip or flat. Heating is by an up-to-date forced warm air system. House is completely wired and equipped with modern electric light fixtures.

Engineering applied to low-cost homes. Engineering News-Record. v.116, no. 10. March 5, 1936. p. 349-352. Two types of construction portrayed are interesting departure from usual design.

Home to grow with. By Verna Cook Salomonsky. Better Homes and Gardens. v. 14, no. 2. October, 1935. p. 79-80. Three-unit house.

House building begins to get technical attention. Engineering News-Record. v. 116, no. 12. March 19, 1936. p. 412-414. Principal steps in operation of proposed Home Building Service Plan are following: 1. Lending institution carries on promotional campaign to attract home builders. 2. Applicant is interviewed at lending institution as to his housing requirements, and also as to his financial ability. 3. Applicant is assisted in selection of appropriate house design from sketch plans furnished by architect associates. 4. Applicant applies for mortgage loan and for architectural service with cooperating service. 5. Lending institution determines eligibility of applicant for financing. 6. Lending institution appraises building lot. 7. Architect inspects lot and reports upon suitability of selected design to site and neighborhood, and as to practicability of placing house on lot. 8. Based on reports 5, 6 and 7, lending institution passes on mortgage application and makes tentative commitment. 9. Architect furnishes working drawings and specifications and invites contract proposals from limited number of contractors, previously qualified. 10. Owner having accepted contract proposal, architect prepares contract documents for signature. 11. Architect then follows through on supervision and inspection of contract work and certifies as to payments due. 12. Lending institution prepares loan documents for signature. 13. Lending institution makes payments on contract on architect's certification, arranges fire and other insurance for owner, checks contractor's compliance with contract requirements as to liability insurance and bond (if required), and performs other functions as fiscal agent. 14. Construction being completed and accepted by architect and approved by owner, and liens having been waived or released, final payment is made to contractor.

Housing plans ready for Congress. Engineering News-Record. v. 116, no. 10. March 5, 1936. p. 355. Assured return is offered to attract capital to low priced field in attempt to prevent overbuilding in higher priced field. More careful construction expected through mortgage requirements binding on contractor.

Houses. (Cont'd)

Outlook for improving farm homes. By S.P. Lyle. Washington, D.C. 1936. 8p. mimeographed. U.S. Department of Agriculture.

Prefabricated house built at Purdue University. Engineering News-Record. v. 116, no. 14. April 2, 1936. p. 499. New product of General Houses, inc., Chicago, designed to sell for less than $5,000. House is of frame construction in contrast to this company's original product which utilizes steel panel walls. Frame is of copper-bearing steel columns and beams. Exterior wall panels are asbestos-cement board on outside and fir plywood on inside. Two sheets of aluminum insulation with sheet of building paper between are installed in wall air spaces. Ceiling panels are of same general construction, except that they contain four sheets of aluminum foil with three air spaces and are of plywood on both inner and outer surfaces. Partitions consist of plywood panels and copper-bearing steel studs. Roofing is of prefabricated panels of galvanized copper-bearing steel with joints sealed by flashing.

Purdue proving grounds for better housing. By Frank C. Lewis. Agricultural Leaders' Digest. v. 17, no. 2. February, 1936. p. 10-13. On June 1, 1935, at invitation of Purdue University, more than hundred leading industrialists interested in better living conditions and housing, met at Purdue University to discuss organization of Research Project on Better Housing. Two projects were introduced at this meeting; one, establishment of all-weather laboratory, in which, not only materials may be given physical laboratory, in which, not only materials may be tested in combination with each other in form of completed home. Other project, to take form of proving ground in which various constructed and arranged houses may be occupied and records taken under normal living conditions. Site planning, playgrounds, utility services, sewage disposal, water supplies, home conveniences, and community living factors all enter into this project.

So you're going to build a new home: By Eugene Raskin. Better Homes and Gardens. v. 14, no. 2. October, 1935. p. 30-31, 60-62. Fireproof and semi-fireproof construction. No. 2.

So you're going to build a new home: By Eugene Raskin. Better Homes and Gardens. v. 14, no. 3. November, 1935. p. 82-86. New materials and new construction methods. No. 3.

Hydraulics.

Current hydraulic laboratory research in the United States. January 1, 1936. 106p. Mimeographed. U.S. National Bureau of Standards.

Portable hydraulic laboratory. By Scott B. Lilly. Civil Engineering. v. 6, no. 4. April, 1936. p. 241-243. Development of an ingenious device for demonstrating flow. Permits water to be observed flowing through variety of orifices and over number of different types of weirs - whole mounted on casters and capable of being moved about. Article tells how portable hydraulic laboratory is constructed, method of operating it, and purposes it serves.

Hydroelectric Power.

Hydroelectric power in Washington. Part IV. Regional electric-power transmission, the grid system. By Carl Edward Magnusson. Seattle, Wash. 1936. 51p. Washington, Engineering Experiment Station. Bulletin no. 90.

Insect Control.

Traps for the Japanese beetle and how to use them. By F.W. Metzger. Washington, D.C. 1936. 12p. U.S. Department of Agriculture. Miscellaneous Publication no. 201.

Insulation.

We need a wall for use with insulation. Brick and Clay Record. v.88, no. 3. March, 1936. p.103. Best solution to problem undoubtedly is light-weight insulating unit which will at the same time, form structural part of wall.

Irrigation.

Colorado farmer tries overhead irrigation. By Merrill Otis. Through the Leaves. v. 24, no. 2. March, 1936. p. 46-47. Following conclusions drawn from use of overhead system. 1. In dry seasons beets could be easily germinated by this method. 2. Permits irrigation of beets when they are very small and making of ditches impossible. 3. Destroys many insects on beet leaves thus producing healthier plants. 4. No soil wash or waste water. 5. Labor saved when no ditches are required. 6. About one-third of water required as is necessary in surface method.

Irrigation water resources of Utah. By George D. Clyde. Utah Farmer. v. 56, no. 15. March 10, 1936. p. 3, 22-23, 25.

Orchard irrigation experiments disprove old theories. By William E. Warne. Reclamation Era. v. 26, no. 3. March, 1936. p.66-68. University of California estimates that new practices introduced as result of experiments now are saving California farmers $4,000,000 a year in orchard irrigation and cultivation costs.

Report indicates needs for irrigation subsidies. Engineering News-Record. v.116, no. 14. April 2, 1936. p.507-508. Report, which has been completed for National Resources Committee by Bureau of Agricultural Engineering, indicates that there remain about 100,000,000 acres which could be adapted to agriculture by drainage and more than 30,000,000 acres which could be reclaimed by irrigation. This report is part of Supplementary Land Report.

Water, water, everywhere. By H.G. Moore. Farm and Ranch. v.55, no.1. January 1, 1936. p. 1, 21. New interest in well irrigation on the Plains.

Land Utilization.

Correct land use showing results. By Rufus J. Nelson. Farm and Ranch. v. 55, no. 1. January 1, 1936. p. 2, 14. Saving soil and conserving rainfall affords food and feed crops.

Engineer's view of land-use planning. By H.B. Walker. Agricultural Engineering. v. 17, no. 3. March, 1936. p. 114, 119.

Lime.

Lime, its need and use in West Virginia. By W.H. Pierre and G.G. Pohlman. Morgantown, W. Va. 1936. 24p. West Virginia. Agricultural Experiment Station. Circular no. 71.

Lubrication.

Lubrication of water pumping equipment. Public Works. v. 67, no.1. January, 1936. p. 30-31. Reciprocating and plunger pumps. Rotary pumps. Centrifugal pumps.

Moisture Content.

Electrical measurement of moisture content of fabrics. International Cotton Bulletin. v. 14, no. 54. January, 1936. p. 205-206.

Mosquito Control.

Mosquito-control procedure defined as engineering problem. Engineering News-Record. v. 116, no. 11. March 12, 1936. p. 393-394. Control of mosquito breeding in Tennessee Valley reservoirs held vital to welfare of that region. Malaria epidemics occurring in seven-year peak cycles not confined to southern states. New larvicide gives temporary protection at outdoor gatherings.

Motor Trucks.

Operating costs of light duty trucks. Market Growers Journal. v.58, no. 5. March 1, 1936. p. 130-133.

Motors.

Motors and control for refrigeration service. By M.N. Halber. Southern Power Journal. v. 54, no. 3. March, 1936. p. 39-41. Part 3.

Painting.

Hints on getting a good paint job. Ohio Farmer. v. 177, no. 4. February 15, 1936. p. 15.

Right kind of paint for your house. By F.L. Browne. Progressive Farmer. v. 51, no. 3. March, 1936. p. 32-33.

Plants, Effect of Light on

Use of artificial light and reduction of the daylight period for flowering plants in the greenhouse. By G.H. Poesch and Alex. Laurie. Wooster, Ohio, 1935. 43p. Ohio. Agricultural Experiment Station. Bulletin no. 559.

Plows and Plowing.

Essentials of good plowing. Ohio Farmer. v. 177, no. 4. February 15, 1936. p. 17. 1. Good granulation, especially when plowing is to be followed relatively soon by seeding. 2. Complete covering and

Plows and Plowing. (Cont'd)

mixing of trash. 3. Uniform consistency throughout depth of turned furrow slices. 4. Good confrömation of surface. 5. Uniform width and depth of furrows. 6. Straight furrows. 7. Low, even, clean backfurrows and shallow clean deadfurrows. 8. Even, clean furrow ends.

Laying our fields for plowing. Ohio Farmer. v. 177, no. 4. February 15, 1936. p. 17.

Ponds.

On the nature of ponds or how should a well-rounded recreational pond be built? By Dr. H.P.K. Agersborg. Washington, D.C. 1936. 8p. mimeographed. U.S. National Park Service. E.C.W. Technical circular no.2.

Potato-Cultivation.

Potato and its use of soil moisture under irrigation. By Leslie Bowen.. 1935. 7p. Reprinted from Annual Report of the Nebraska Potato Improvement Association of the year 1934-35.

Poultry Houses, and Equipment.

Keeping hens in batteries. By W.J. Parker. New England Homestead. v.109, no.3. February 1, 1936. p. 4, 21. Labor saving devices are important in this 4,000 bird plant.

Public Works.

References on the Federal emergency administration of public works and its work, including the Public Works housing division. Compiled by James T. Rubey. Revised. 1936. 47p. mimeographed. U.S. Geological Survey Library. Bibliographical list no. 2.

Research.

Current studies at Lehigh University. By Inge Lyse. Engineering News-Record. v. 116, no. 11. March 12, 1936. p. 391-392. Steel-plate floors. Welded clip angles. Shear and bending in welds. Concrete shrinkage. Concrete slab studies.

Governmental research organizations in the western states. Directory of agencies, and an index to their studies. Berkeley, Calif., 1936. 32p. multigraphed. University of California. Bureau of Public Administration

Refrigerants.

Carbon dioxide in its new field of usefulness. By J.C. Goosman. Ice and Refrigeration. v. 90, no. 4. April, 1936. p.289-293. Developments in production of carbon dioxide. Resume of existing, operating, reconstructed and abandoned plants. Dry ice plants in the East. Smokestack carbon dioxide. Survey of existing dry ice plants. Cost of dry ice manufacture, distribution and delivery.

Refrigerants. (Cont'd)

Dry ice application developments. By H. F. Coleman. Australian Refrigeration Review. v. 6, no. 10. December 31, 1935. p.27, 29-31.

Eutetic salt ice. By Crosby Field and Arthur Adams. Refrigerating Engineering. v. 31, no. 2. February, 1936. p. 95-100. To summarize, none of the brines of concentrations other than eutetic is likely to become of much commercial importance even in those fields requiring temperatures much higher than 10°F. because: a. It will not melt at constant temperature. b. It has less than half available Btu. content of eutetic for any reasonable rise in temperature. c. It is very doubtful that it can be frozen in 12% or greater concentration of original solution with ammonia temperatures much higher than can be used for obtaining eutetic itself. d. Possibility of easier handling and reclaiming of slush ice over eutetic is still very questionable. e. From a and b above, it follows that system of automatic control of temperature must be added to equipment to overcome defect (a), and two or three times as much weight of refrigerant must be carried to produce same total refrigerating duty. Properties of salt ice. Manufacture of eutetic salt ice.

Latest developments in the manufacture and use of salt brine ice. By Robert T. Brizzolara. Ice and Refrigeration. v. 90, no. 4. April 1936. p. 243-245. Illustrated description of manufacture and properties of frozen salt and water mixture. Offers considerable merit in holding products at low temperature. Commercial demonstrating plant erected at Newark, N.J. by Salt Ice Corporation. Preparing salt water for freezing. Cost of manufacture.

Review of refrigerants and their use. Australian Refrigeration Review. v. 6, no. 10. December 31, 1935. p. 23-25. New gases and investigations.

Refrigeration.

New investigations in absorption refrigeration. By B.H. Jennings. Bethlehem, Pa., 1936. 19p. Lehigh University. Institute of Research. Circular no. 117.

Refrigeration of oranges in transit from California. Ice and Refrigeration. v. 90, no. 4. April, 1936. p. 285-286. Summary of report issued by United States Department of Agriculture. Refrigeration services used. Transportation tests. Application of results of investigation. Comparison of cost for shipments of citrus fruit under different methods of refrigeration. Advantages of preicing cars.

Roads.

Building roads on the farm. By J.C. McCurdy. Ithaca, N.Y. 1935. 12p. Cornell University. Extension Service. Bulletin no. 332.

Roofs.

Over head. By W.A. Foster. Capper's Farmer. v. 47, no. 4. April 1936. p. 14, 37. Discussion of roofing materials.

Rope.

Rope purchases. Ohio Farmer. v. 177, no. 4. February 15, 1936. p. 15. Table gives weight and strength of rope - manilla, three strand.

Silt.

Siltometer for studying size distribution of silts and sands. By Amar Nath Puri. Lahore, India, 1935. 6p. Punjab Irrigation Research Institute. Research publication, v. 2, no. 7.

Soil Conservation.

Making a living while improving the farm. By J. Ross Fleetwood. Missouri Ruralist. v. 77, no. 5. March 7, 1936. p. 3, 18. Program of soil saving and soil building.

Redeeming the good earth. By Dillon S. Myer. Extension Service Review. v. 7, no. 3. March, 1936. p. 33, 46. Important role played by County Agent in soil conservation

Wallace's statement on soil conservation program. Utah Farmer. v. 56, no. 15. March 10, 1936. p. 6, 13.

Soil Mechanics.

Practical soil mechanics at Muskingum. By Theodore T. Knappen and Robert R. Philippe. Engineering News-Record. v. 116, no. 13 March 26, 1936. p. 453-455. Part 1. Groundwork for a rational study.

Soil mechanics in engineering: Editorial. Public Works. v. 67, no. 1. January, 1936. p. 19.

Solar Radiation.

Pyrheliometers and the measurement of total solar radiation. By L.A. Harding. Heating, Piping and Air Conditioning. v. 8, no.4. April, 1936. p. 213-218.

Soils.

Development and significance of the great soil groups of the United States. By Charles E. Kellogg. Washington, D.C. 1936. 40p. U.S. Department of Agriculture. Miscellaneous Publication no. 229.

Rating of California soils. By Walter W. Weir and R. Earl Storie. Berkeley, Cal., 1936. 157p. California. Agricultural Experiment Station. Bulletin no. 599.

Study of the uniformity of soil types and of the fundamental differences between the different soil series. By Franklin L. Davis. Auburn, Ala., 1936. 153p. Alabama Polytechnic Institute. Bulletin no. 244.

Specific Heat.

New tables of specific heats. By Herman Vetter. Refrigerating Engineering. v. 31, no. 3. March, 1936. p. 174.

Sprays and Spraying Equipment.

Characteristics of spray nozzles for vegetable and weed spraying. By O.C. French and A.S. Crafts. Agricultural Engineering. v. 17, no. 3. March, 1936. p. 115-119. Paper discusses some differences and gives data useful in designing of equipment for field work.

Tanks.

Water systems and tanks. Ohio Farmer. v. 177, no. 4. February 15, 1936. p. 16. Tables gives capacity of steel tanks and number of gallons on circular cisterns and tanks.

Temperature.

Room surface temperature of glass in windows. By J.E. Emswiler and W.C. Randall. Heating, Piping, and Air Conditioning. v. 8, no.4. April, 1936. p. 219-223. Room surface temperature of glass in windows is determined by percentage of total difference in temperature between inside and outside air. Actual test results, almost without exception, indicate that this percentage is constant factor for any particular kind of window and wind condition, and for all temperatures of outside air. Use of factors representing various percentages or ratios will allow solution of problems concerning depositions of moisture on single double glazed windows or double windows, as well as other problems involved in use of windows for modern air-conditioned installations. Increasing use of air-conditioning with relatively high humidities has made imperative solution of problem of factors involved in deposition of moisture on room surface of glass in windows. Results presented were obtained in connection with project sponsored by Technical Committee of Metal Windows Institute and conducted at University of Michigan in Department of Engineering Research.

Tennessee Valley.

Government power. By Ben Hibbs. Country Gentleman. v. 105, no.10. October, 1935. p. 19, 76-80. Discussion of T.V.A. project.

Terracing.

Terrace outlets. Capper's Farmer. v. 47, no. 4. April, 1936. p.49. One of big mistakes that has been made in terracing has been failure to protect outlets. Turning water into roadside ditches, creeks or established gullies will cause serious damage if adequate baffles are not established. Here is masonry baffle constructed under supervision of Soil Erosion Service. It is one of a series in shallow channel constructed to receive water from terraces of both sides. Baffles work in same way that similar structures do in properly constructed roadside ditches. With baffle of this kind across water course at intervals, length of which depend upon slope or fall, flow is checked and doesn't have opportunity to scour out a fully. Various other types of baffles are used. Material depends to some extent upon locality. Native rock commonly is employed. It may be set in mortar as in this case, or it may be laid in riprap fashion,

Terracing. (Cont'd)

with flat slabs shingled to resist water. Where rock is not available log or pole baffles may be used. Sections of woven wire buried to ground level and with plantings of sod or erosion resisting trees like willow, black locust or wild plum above are effective and commonly used where rock or timber are not conveniently available.

Tires.

Easily they roll along. By J. Brownlee Davidson. Successful Farming. v. 34, no. 4. April, 1936. p. 18, 70-71. Mount farm machinery on rubber tires and you can pull much more load - and pull it faster.

Tire with flexible-rib tread stops car fast. Popular Mechanics. v.65, no. 2. February, 1936. p. 165. In actual road tests stopping distance is about half that necessary for cars equipped with tires carrying conventional treads

Tires grow tougher and tougher. Wisconsin Agriculturist and Farmer v. 63, no. 4. February 15, 1936. p. 22.

Tractors.

Garden tractor in California. By K.R. Frost. Agricultural Engineering. v. 17, no. 3. March, 1936. p. 109-110. Reasons why people in California buy garden tractors: 1. Reduce investment per acre. 2. Lower than horse operating costs. 3. Operate in close quarters. 4. Enable accurate, careful cultivation. 5. Make use of their spare time, or as a hobby. 6. Be independent of outside hiring. 7. Reduce hand labor to minimum. 8. Make it possible to do the work at the proper time. Table gives garden tractor survey results (1935).

Garden tractors in the United States. By A.A. Stone. Market Growers Journal. v. 58, no. 6. March 15, 1936. p. 147, 149-151, 153.

Magin in tractors. By E.T. Leavitt. Farm Journal. v. 60, no. 4. April, 1936. p. 24, 45.

Walls.

Steel walls that "breathe" defy quakes and corrosion. Popular Mechanics. v. 65, no. 2. February, 1936. p. 202. All load-bearing walls are of copper-bearing steel imbedded in foundation of concrete slab, the steel specially processed to withstand corrosion. Numerous air vents in cellular walls allow air to circulate constantly, helping insulate against summer heat and prevent heat loss in winter. Exterior finish and roofing material may be chosen to suit builder. Plaster walls on interior are made possible by nailing wallboard or insulating material through steel with barbed, casehardened nails and then applying plaster. Steel joists are hung on steel dowels inserted in air ports of walls. Hardwood floors are either laid on top of waterproof concrete slab, or are nailed to strips laid in concrete.

Water Supply.

Plugging old artesian wells to stop underground water loss. By Thomas M. McClure. Engineering News-Record. v. 116, no. 12. March 19, 1936. p. 425-427. Conservancy district in New Mexico under state regulation cements off wells that cause leakage from artesian storages into upper strata. Total of 114 wells has been plugged in five years.

They let the water do the running. By E.T. Leavitt. Farm Implement News. v. 57, no. 7. March 26, 1936. p. 22.

Water from wells. Farmer-Stockman. v.49, no.2. January 15, 1936. p.18.

Weirs.

Discharge of three commercial Cippoletti weirs. By Robert Bowman Van Horn. Seattle, 1935. 23p. Washington. Engineering Experiment Station. Bulletin no. 85. Purpose of investigation is to study discharge of three commercial weirs of 12-, 18- and 24-inch width and to compare discharge with formula-discharge of Cippoletti.

Windows.

Dormer windows, as they generally are, and as they can be improved. By Gerald K. Geerlings. House & Garden. v. 68, no.6. December 1935. p. 60-61.

Wood.

Suitability of woods to various farm uses. Ohio Farmer. v. 177, no. 4. February 15, 1936. p. 16.

Wood Preservation.

Arsenic compounds in wood preservation to protect against termite attack and decay. By John G. Kreer. American Lumberman. no. 3064. January 4, 1936. p. 38-40.

Oil stopped termites. By G.F. Williams. Capper's Farmer. v. 47, no. 4. April, 1936. p. 42. Crankcase oil, creosote and coal oil passed down outside of foundation wall not only enters cracks being used by termites, turning them back into house to perish promptly from thirst, but soil water outside wall that termites depend upon for their existence is polluted.